

Abstract of the Disclosure

A mechanism is described that predicts the usefulness of a prefetching instruction during the instruction's decode cycle. Prefetching instructions that are predicted as useful (prefetch useful data) are sent to an execution unit of the processor for execution, while instructions that are predicted as not useful are discarded. The prediction regarding the usefulness of a prefetching instructions is performed utilizing a branch prediction mask contained in the branch history mechanism. This mask is compared to information contained in the prefetching instruction that records the branch path between the prefetching instruction and actual use of the data. Both instructions and data can be prefetched using this mechanism.